

Neck support for a chair

## Description

## 5 TECHNICAL FIELD

The invention relates to the field of seating furniture, in particular to a neck support for an office chair.

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## PRIOR ART

In particular in the office, it is important for it to be possible for the user of a chair to relax repeatedly 15 from the sitting position which he/she assumes while working. For this purpose, it is necessary not just to open the angle between the upper and lower parts of the body by leaning back, but also to allow the head and neck to rest. The neck support is used for this 20 purpose.

A neck support for an office chair is known, for example, from EP 1,192,880 A2. In the case of this neck support, a retaining bar is attached in an articulated 25 manner on the rear side of the backrest of the chair, and a guide sleeve slides on this retaining bar, the head cushion being fastened at the top end of said guide sleeve. The retaining bar and guide sleeve are designed in the form of circle arcs. The distance 30 between the head cushion and the user's head or neck is changed predominantly by pivoting the retaining bar about the articulation bearing on the backrest. In addition, however, such a change is also made during a height adjustment of the head cushion, by sliding the 35 guide sleeve on the retaining bar, on account of the circle-arc-like movement path.

Although the known design has proven successful in practice, it is not completely satisfactory from an

aesthetic point of view since fitting the articulation bearing on the backrest disturbs the uniform appearance of the same. Furthermore, the production outlay is not insignificant, and the adjustment of the distance  
5 between the head cushion and the user's head by virtue of the height adjustment over a circular path is not sufficiently flexible.

Another neck support is known from EP 1,186,257 A2. In  
10 the case of this neck support, a circle-arc-like retaining bar is articulated on the top edge of the backrest, it being possible for a likewise circle-arc-like guide sleeve, which is integrated in the head cushion, to slide up and down on said retaining bar.

15 This neck support has also proven successful in practice, but, like the first-mentioned neck support, has the disadvantage that the distance between the head cushion and the user's head cannot be adjusted over an  
20 optimally wide range.

Another neck support is known from DE 20 04 731 A. The neck support can be adjusted about two pivot pins which are fitted in an axis-parallel manner to one another  
25 and of which one extends within the backrest of the seat and the other extends within the head support.

A similar neck support, which is likewise intended for car seats, is known from DE 21 15 220 A. Here, the head  
30 support is connected to the backrest via a pivot pin in each case and a central component comprising two tubular components which can slide one inside the other.

35 Although these known neck supports have an adjustment range which is sufficient for car seats, they cannot be used for chairs, on account of the requirements which have to be met by the latter differing vastly from those which have to be met by car seats.

DESCRIPTION OF THE INVENTION

The object of the invention is thus to develop a neck support for a chair, in particular an office chair, such that it, on the one hand, can be fitted discreetly on the backrest in an aesthetically pleasing manner, and without excessive production and installation outlay but, on the other hand, nevertheless has a wide adjustment range for the user's head. In particular, the neck support should also have these properties when installed on a height-adjustable and tilttable backrest.

This object is achieved by the features of Claim 1 and 15 of the subclaims.

The invention is based on the idea of attaching a rectilinear retaining bar in an articulated manner on the top edge of the backrest and of providing a rectilinear guide sleeve in a displaceable manner on this retaining bar, the head cushion being articulated at the top end of said guide sleeve. The pivoting range of the retaining bar should be approximately 35° in the forward direction, from the direction of the backrest, and that of the head cushion should be approximately 40°. Based on this fundamental concept, the neck support may then be configured in detail such that it can be produced and installed in an aesthetically pleasing manner, and without high outlay, and, in particular together with a backrest which can be adjusted in respect of height and inclination, provides an optimum adjustment range for the user.

#### BRIEF DESCRIPTION OF THE DRAWINGS

The invention is explained in more detail hereinbelow  
5 with reference to an exemplary embodiment illustrated  
in drawings, in which:

Figure 1 shows, schematically, the functioning and the  
adjustment range of the neck support  
according to the invention,  
10 Figure 2 shows the view of the individual parts of the  
neck support according to the invention in an  
exploded illustration,  
Figure 3 shows, on the right, the neck support  
according to the invention in a view from the  
15 front and, on the left, the section A-A from  
the illustration on the right-hand side, and  
Figure 4 shows, at the top right, a section through  
the bearing on the top edge of the backrest  
and, to the left of and beneath the latter,  
20 the sections B-B, C-C and F-F.

#### METHODS OF IMPLEMENTING THE INVENTION

Figure 1 illustrates a detail from the top central part  
25 of the backrest 1 of a swivel chair for the office, a  
rectilinear retaining bar 2 being attached thereto via  
a bottom articulation bearing 3. Arranged in a  
displaceable manner on this retaining bar 2 is the  
guide sleeve 4, which has the top articulation bearing  
30 5 at its top end. The head cushion 6 is articulated on  
said articulation bearing 5 by way of its top part.

Four different possible positions of the head cushion 6  
are illustrated:  
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In the first position, the retaining bar 2 and guide  
sleeve 4 run in extension of the backrest 1, that is to  
say vertically upwards in the figure, the guide sleeve  
4 assuming its lowest position. In the second position,

the guide sleeve 4 is likewise located vertically, but in its highest position.

In the third and fourth positions, the guide sleeve 4  
5 is inclined forwards, and the head cushion 6 is located, in the first case, in the lowest position, and in the second case, in the highest position.

According to the invention, the pivoting range about  
10 the bottom articulation bearing 3 should be up to approximately 35°, and that about the top articulation bearing 5 should be up to approximately 40°. The extension length of the guide sleeve 4 out of the retaining bar 2 is approximately 70 mm. This short  
15 extension length is possible by virtue of the neck support being fitted on a backrest which can be adjusted not just in respect of inclination but also in respect of height: the rough adjustment can then take place by way of the backrest of the chair, the  
20 adjustability of the neck support serving only for precision adjustment. A considerable adjusting range is thus achieved overall.

It can be seen from Figure 2 that the retaining bar 2  
25 has a cylinder 7 integrally formed at the bottom. In the installed state, the cylinder 7 is located between the cylinder 8 and the cylinder 9, which are both integrally formed at the top end of the bearing foot 10.

30 For installation purposes, the two blocks 13 are inserted, together with the helical spring 28, into the cylinder 7 and forced against one another. The cylinder 7 is then moved between the cylinders 8 and 9 and the  
35 pressure on the spring 28 is eliminated. The blocks 13 thus enter into the cylinders 8 and 9, and the retaining bar 2 is consequently mounted in an articulated manner. As can also be seen from sections B-B and C-C in Figure 4, in particular, the inner

shaping of the cylinder 7 on the retaining bar 2 is such that the blocks 13 cannot rotate. The shaping in the cylinder 8 or 9, however, is such that the blocks 13 have a rotary clearance between the stops 14, this 5 rotary clearance allowing the retaining bar 2 to pivot.

In order that the retaining bar 2 is fixed in each pivoting position set, cup springs 15 are provided in the cylinders 8 and 9, the cup springs being subjected 10 to stressing by means of a clamping screw 16, so that the retaining bar 2 is retained by the resulting friction.

The construction of the top articulation bearing 5 is 15 basically identical to the construction described for the bottom articulation bearing 3. A dedicated description will thus not be given in respect of the top articulation bearing, and the corresponding individual parts are not provided with dedicated 20 designations. This bearing is different, however, in so far as the cylinders corresponding to the cylinders 8 and 9 are fitted on the link plate 26, these being fastened on the frame 23 of the head cushion 6 by means of the screws 27.

25 The movement of the guide sleeve 4 on the retaining bar 2 is stabilized by the sliding rings 21. These have sliding protrusions 24 and, following installation, engage in the notches 22 of the retaining bar 2. The 30 clip 20 slides in the guide slot 19 and grips in the recess 25 of the guide sleeve 4 by way of its nose, thus serving as a means for preventing withdrawal of the guide sleeve 4 sliding on the retaining bar 2.

35 It can clearly be seen in Figure 2 that the head cushion 6 is retained on a frame 23. The frame 23, that preferably consists of plastic, is advantageously encapsulated in polyurethane (PUR) foam in order to produce the head cushion 6. The head cushion 6 thus has

a flexible centre and provides enhanced comfort for the user.

Figure 3 shows the neck support according to the  
5 invention in the installed state. The parts which have  
already been described are also clearly evident in the  
installed state and will thus not be described again.

A further description will thus merely be given of the  
10 fastening of the bottom articulation bearing 3 in the  
backrest 1 of the chair:

As can be seen, the bearing foot 10 is inserted in a  
tongue-like manner in the shaft 11 of the backrest  
15 panel 12. As can also be seen from Figure 2, the  
bearing foot has a bottom latching nose 17, which  
latches into the recess 18 of the backrest panel 12 and  
thus firmly anchors the bearing surface 10. The  
operation of installing the neck support on the top  
20 edge of the backrest 1 is thus extremely  
straightforward, but nevertheless secure.

Figure 4, once again, illustrates the details of the  
bottom bearing 3, which - as has already been said -  
25 also correspond to those of the top bearing 5. In  
particular the function of the blocks 13 in the  
cylinders 7, 8 and 9 is clearly evident from Figure 4.

In summary, it should be stated that the neck support  
30 according to the invention, by virtue of its linear  
height adjustment and its pivotability about two  
bearings, provides an extremely high degree of comfort  
for the user, but can nevertheless be produced and  
installed with comparatively low outlay.

List of designations

1	Backrest
2	Retaining bar
5	3 Bottom articulation bearing
	4 Guide sleeve
	5 Top articulation bearing
	6 Head cushion
	7 First cylinder
10	8 Second cylinder
	9 Third cylinder
	10 Bearing foot
	11 Shaft
	12 Backrest panel
15	13 Blocks
	14 Stops
	15 Cup springs
	16 Clamping screws
	17 Latching nose
20	18 Recess for latching nose 17
	19 Guide slot
	20 Clip
	21 Sliding ring
	22 Notches
25	23 Frame
	24 Protrusions
	25 Recess for clip 20
	26 Link plate
	27 Screws
30	28 Spring